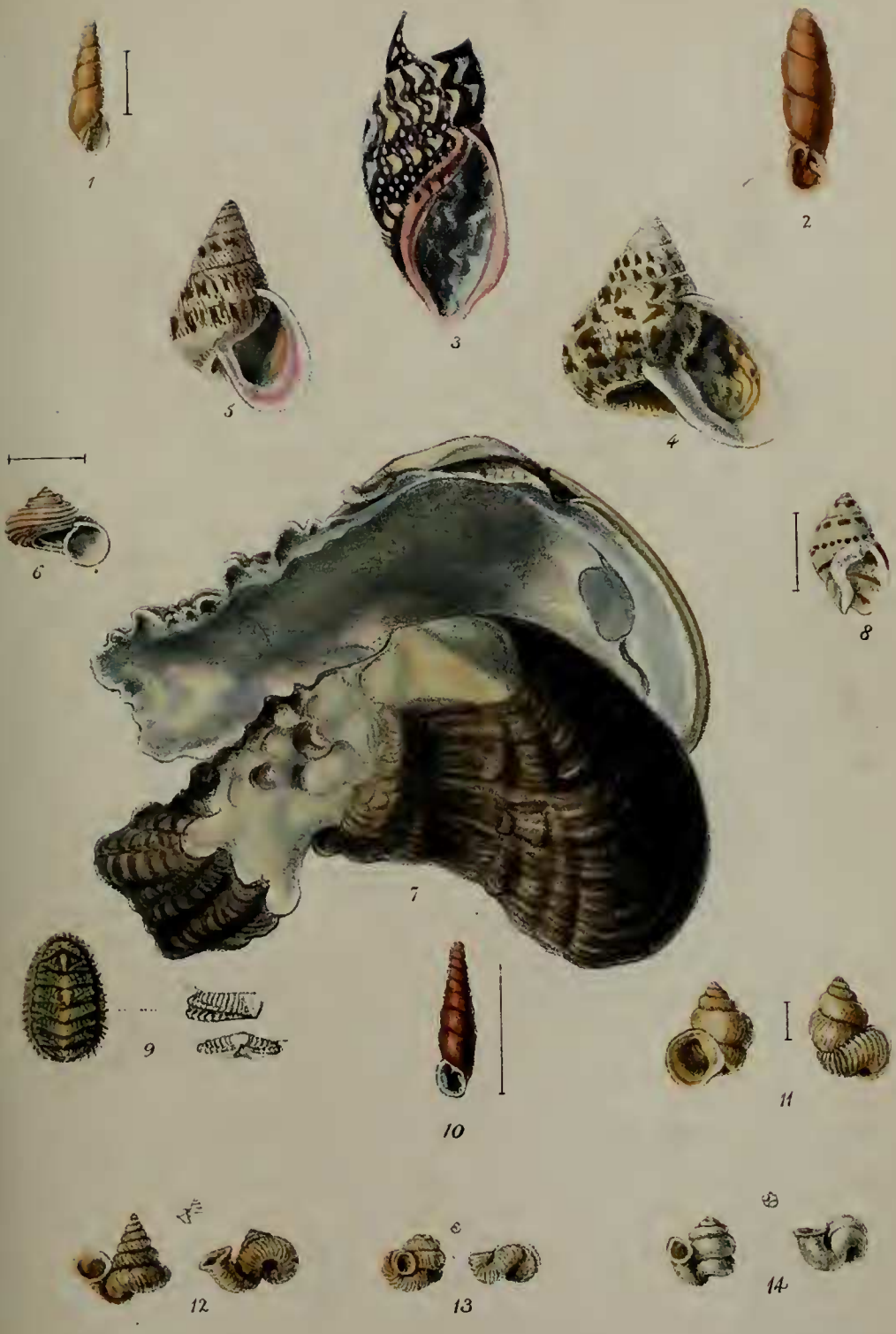

G. SOWERBY LITH.

MAN HANHART IMP.

NEW SPECIES OF MOLLUSKS

Fam. Mutelidæ.

6. Spatha baikii, sp. nov.

S. *testa solidula, transversa, ovata, ventricosa, antice angusta, rotundata, postice lata, subrotundata; margine dorsali arcuato; margine ventrali in medio sinuato; epidermide nigro-fusca; umbonibus antemedianis, inconspicuis, erosis; margarita salmonaceo-purpurea.*

Long. 120, alt. 80, lat. 45 mill.

Hab. River Niger.

I have named this species after my lamented friend Dr. Baikie, by whom it was collected. It differs from *S. rubens*, to which it approaches most nearly in form, in being more ventricose, broader and more rounded posteriorly, and in having a greater sinuation of the ventral margin. It is also a larger shell, and the epidermis is of a darker colour.

Note on Opisthostoma de-Crespignii.

Since describing the shell of this species, some examples having the animal dried within them have come into my possession; and by breaking one of them carefully and extracting the animal I have ascertained that it is provided with an exceedingly minute and very thin horny operculum. As, from its helix-like appearance and very elongated and porrected mouth, it is more singular even than the type of the genus, *O. nilgiricum*, a figure of it is now given (Pl. XXXVIII. fig. 12), none having hitherto been published.

M. de Crespigny has suggested that this genus may be identical with the fossil *Scoliostoma*, which, however, has hitherto been regarded as marine. Its resemblance to the type of *Scoliostoma*, *S. dannenburgi*, is very strong; and if they are not generically the same, the very singular fact must certainly be admitted that a group of recent land-shells exists possessing this peculiar form in common with a group of extinct marine shells.—H. Adams.

11. On *Opisthostoma*, H. Blanford, with the Description of a New Species from the Neighbourhood of Bombay, and of the Animal and Operculum. By William T. Blanford, Assoc. Roy. Sch. Min., F.G.S.

(Plate XXXVIII.)

To the keen search of one of the most indefatigable and successful collectors of land shells in India, the Rev. S. Fairbank, is due the very interesting discovery of a second species of the remarkable Cyclostomaceous genus *Opisthostoma*, the type of which was first found by my brother, Mr. H. F. Blanford, on the Nilgiri hills of

Southern India in 1857. The rediscovery of the genus is none the less fortunate, that specimens of the original species are so excessively rare that it has been impossible to distribute them so as to make the form known in Europe. I have on two separate occasions, in 1859 and 1864, searched the neighbourhood of Pykara, on the Nilgiris, without success, and, owing to an unfortunate accident, by which most of the original specimens were lost, I believe that but two now remain, one of which is in my own collection, and another in Mr. Benson's. Several specimens of the new species have, fortunately, been obtained; and it is to be hoped that the number may be increased, as the locality is easy of access.

The new form is a very near ally of *O. nilgiricum**, H. Blanf. (Pl. XXXVIII. fig. 13), but still readily distinguished by several not unimportant characters. Specimens have, fortunately, been obtained living, enabling me to complete the characters of the genus, and to confirm the opinion expressed by my brother, in our joint paper, of its being an operculated form. Although I have not succeeded in examining the animal so closely as I could have wished, I have been able to note the form of the tentacles, with the position of the eyes, and to see the operculum. All tend, I think, to bear out the views I expressed, in 1864†, as to the affinities of the genus.

Before proceeding to any further remarks, it will be well to describe the new species, and to give the generic characters as now ascertained.

Opisthostoma, H. Blanf.

Testa anguste umbilicata, umbilico interdum ab anfractu ultimo obtecto, irregulariter pupæformis, costulata, anfractibus apicalibus deflexis, anfr. ultimo constricto ibidem angulo acuto deflexo, retro curvato, denique sinistrorsum ascendente. Apertura retrorsa, circularis vel subcircularis. Operculum tenue, corneum, concentrice paucispirale, profunde retractum. Animal tentaculis brevibus, cylindricis, obtusis, oculis ad basin externam tentaculorum sessilibus, lateraliter positis sed Cyclophoridarum *altioribus. Pes brevis. Proboscis brevissima.*

Opisthostoma fairbanki, n. sp. (Pl. XXXVIII. fig. 14.)

Testa irregulariter ovata, albida, confertim costulata, lineis impressis spiralibus minutis, vix sub lente conspicuis, sæpe obsoletis, inter costulas signata. Spira breviter subcylindrica, apice perobtuso, sutura profunda. Anfr. 5, rotundati, duo apicales parum exserti, ex axi deviantes, tertius multo major, quartus maximus, quintus brevissime constrictus, ad stricturam angulo acuto versus umbilicum deflexus, in figuram literæ S curvatus, umbilicum omnino tegens, denique sinistrorsum ascendens, anfractus penultimus undique junctus. Apertura postica,

* Described and figured in the 'Journal of the Asiatic Society of Bengal,' vol. xxix. p. 121, 1860. The figures are very good.

† Ann. and Mag. Nat. Hist. ser. 3. vol. xiii. p. 444.

verticalis, subtrigonali-rotundata; peristoma simplex, undique expansum. Operculum normale.

Diam. incl. peristom. 1·5 mm.; perist. non incl. 1 mm.; alt. 1·5 mm.; aperturæ diam. circa 0·5 mm.

Hab. prope Khandalla ad summos montes "Syhadri" sive Western Ghats appellatos, inter Bombay et Poona, Indiæ orientalis.

The animal was very difficult to observe, on account of its extreme shyness and minute size. Only a very small portion of the body was extruded from the shell. The foot is very short and apparently rounded, but could not be seen fairly, as the animal would not crawl up a glass but appeared to endeavour to hide itself amongst decayed leaves. The tentacles are short and blunt, the eyes at their outside base, rather high in position, but not nearly so much so as in the *Aciculaceæ*. The whole animal is white and translucent, the eyes appearing as black specks, perfectly sessile. After two or three failures I succeeded in examining an operculum by breaking back the whorls of a specimen carefully until I came to it. It is lodged at the constriction in the last whorl, as long since suggested by Mr. Benson, and is distinctly horny, concentric, and paucispiral, resembling the figure of the operculum of *Diplommatina folliculus* given in Adams's 'Gen. Rec. Moll.' This entirely confirms the views I long since expressed as to the close affinity of *Opisthostoma* to *Diplommatina*, and shows the former, moreover, to be nearer to the typical costulate *Diplommatinæ* of the Himalaya than to the smooth or spirally lirate species (*Arinia*, H. & A. Ad.) of Hindustan, as the latter have the spiral structure apparently obsolete*. It is worthy of remark that some of the Pupinidæ (e. g., *Pupina artata*, Bens.), when their opercula are examined by transmitted light, show an apparently paucispiral structure, due to the whorls increasing in size more rapidly near the centre; but the construction of the spiral in *Pupina* and *Cataulus* has been shown to be different from that which obtains in other forms of operculated land shells.

The characters which serve to distinguish *Opisthostoma fairbanki* from *O. nilgiricum* are :—

1. The greater exsertion and smaller excentric deflection of the two apical whorls of *O. fairbanki*.

2. The simple expanded peristome and subtrigonally rounded aperture—*O. nilgiricum* having a non-expanding duplicate peristome, the outer portion retro-relict, and a circular aperture.

3. The more distant sculpture.

4. The manner of curvature of the last whorl, the posterior bend of which is much more acute in the present species. In *O. nilgiricum* the posterior half of the sigmoid curve of the last whorl is more open than the semicircular curve nearer the aperture, the umbilicus being fully exposed within the former. In *O. fairbanki* the anterior curve is the more open, and the last whorl just in front of the pos-

* I have just cut out the opercula of two specimens of *Diplommatina pachycheilus*, Bens., from Darjiling, and find the spiral structure much less distinct than it usually is in the Cyclophoridæ.

terior half of the curve passes across and completely conceals the umbilicus.

I have, with some difficulty, detected in *O. fairbanki* the minute decussating striæ observed by my brother between the costulations in *O. nilgiricum*. They are very difficult to see, even under a high power and strong light, and appear to be frequently obsolete. I cannot detect them in my specimen of *O. nilgiricum*, which is in good order.

The bluntly trigonal form of the aperture in *O. fairbanki* does not appear to be quite constant; the mouth in some specimens is nearly round.

The locality at Khandalla, at the top of the well-known Bhore-Ghat incline on the railway between Bombay and Poona, is some distance down a ravine behind the graveyard, below the hill known as the Duke's Nose. The mollusk lives amongst dead leaves, in the same manner as *Diplommatina*, but, except in very wet weather, it appears to bury itself in the ground.

In the paper already referred to, published in the 'Annals and Magazine of Natural History' for June 1864, I gave my reasons for believing in the affinity of *Opisthostoma* and *Clostophis* to *Diplommatina*, instead of to the Pupinidæ, to which Dohrn had referred the first named (in 'Malakoz. Blätter,' vol. x. p. 39), and I also showed that the position assigned by Dr. Pfeiffer to *Diplommatina* in his valuable 'Monograph' was unnatural. In the Second Supplement to the 'Monograph,' which has since appeared, Dr. Pfeiffer follows my opinion only so far as to assign *Clostophis* to the Diplommatinidæ, while he leaves this family with the Aciculidæ in the suborder Opisthophthalma, and relegates *Opisthostoma* together with *Arinia* to the subfamily *Pupininæ* of the family Cyclophoridæ, under the suborder Ectophthalma. To *Arinia* he, moreover, assigns the two species described by my brother and myself as *Diplommatinæ*, from the hills of Southern India, *D. nilgirica* and *D. kingiana*. Had Dr. Pfeiffer seen the two last-named species, he would, I think, scarcely have dissociated them so widely from their nearest relatives the Western Himalayan *Diplommatinæ*, one of which, it should be remembered, is the type of the genus. It may be correct to class *Arinia* with *Pupina*; but I cannot help doubting whether the smooth *Diplommatinæ* of South India belong to the same genus as the Philippine *Cyclostoma minus* of Sowerby, the type of *Arinia*; and I am persuaded that the association of *Diplommatina* with *Acicula* and *Truncatella* is an utter violation of all natural affinities. In no single character of shell, animal, or operculum does *Diplommatina* approach to the Opisthophthalma, so far as I am aware. Its affinities are most unmistakeably with the Ectophthalma; and I believe that its proper position is as the type of a subfamily of the Cyclophoridæ, which subfamily would include *Opisthostoma* and the smooth species of Southern India, and probably *Clostophis*. Whether *Arinia* should be classed with it or not, I am not prepared to say.

DESCRIPTION OF PLATE XXXVIII.

Fig. 1. *Rumina* (*Obeliscus*) *pusilla*, p. 441.
2. *Clausilia* (*Nenia*) *bartletti*, p. 441.
3. *Otostomus pulcherrimus*, p. 442.
4. —— *bartletti*, p. 442.
5. —— *scitus*, p. 442.
6. *Aperostoma connivens*, p. 443.
7. *Bartlettia stefanensis*, p. 444.
8. *Nassodonta insignis*, p. 445.
9. *Frembleya egregia*, p. 445.
10. *Clausilia* (*Phædusa*) *similaris*, p. 446.
11. *Diplommatina* (*Dianeta*) *martensi*, p. 446.
12. *Opisthostoma de-crespignii*, p. 447.
13. —— *nilgiricum*, p. 448.
14. —— *fairbanki*, p. 448.

12. Corrections and Addenda to certain Papers on Lepidoptera published during the years 1865–66; with Additional Notes on some of the Species described. By Arthur G. Butler, F.Z.S., Assistant, Zoological Department, British Museum.

I regret to find that, having relied too much upon the completeness of a recently published list of Diurnal Lepidoptera, I have, in several of my papers, overlooked species. This error has in some cases been the means of leading me to redescribe insects; and to these I propose in the present paper to restore their rightful names.

As I have lately had the advantage of seeing several types, and additional specimens, of insects which I have mentioned, I am now enabled to correct or add to any remarks which I may have made with regard to them.

Papilio.

In a paper published in the 'Annals and Magazine of Natural History,' June, 1866, "On the Identity of certain Species of Lepidoptera," I supposed that *P. caudius* might possibly be an Amazonian form of *P. argentus*. However, I have since detected a male of *P. caudius* amongst our specimens of *P. torquatus*: it differs from the *P. torquatus* of Brazil in having a broader subapical band on the front wings, and greenish instead of yellow submarginal spots on the hind wings; the outline of the wings, too, with the exception of the tails, exactly corresponds to the outline of the wings of *P. caudius*; therefore, although very closely allied, I think these two species may stand. Although the sexes in this group differ considerably in coloration, the outline of the wings is almost identical.

Hesperocharis.

I have seen the type specimen of *Hesperocharis graphites*, Bates, in Mr. Salvin's collection, and I must confess that it seems to me